Program of ICQBIC'11

March 7, 2011, Monday - Main Session (1)

13:20 ～ M. Ohya, Opening Address

13:30 ～ A. Fujishima, President of Tokyo University of Science, Japan

13:40 ～ 14:20 I. Volovich, Steklov, Mathematical Institute, Russia
Quantum Photosynthesis and Entropy Decreasing

14:20 ～ 15:00 A. Jamiolkowski, Nicolaus Copernicus University, Poland
On Effective Methods in Investigation of Quantum Operations and Processes

15:00 ～ 15:15 **Coffee Break**

15:15 ～ 15:55 A. Majewski, University of Gdańsk, Poland
On the Structure of Positive Maps

15:55 ～ 16:35 A. Arai, Hokkaido University, Japan
Mathematical Aspects of Conserved Quantities in a General Class of Quantum Systems

16:35 ～ 16:50 **Coffee Break**

16:50 ～ 17:20 M. Michalski, Nicolaus Copernicus University, Poland
Nonlinear Methods in Entanglement Detection

17:20 ～ 17:50 Y. Shikano, Tokyo Institute of Technology, Japan
Counter-factual Phenomena in Quantum Mechanics

17:50 ～ 18:20 S. Iriyama and M. Ohya, Tokyo University of Science, Japan
Computational Complexity of Quantum Algorithm for Factoring and Partial Recursive Functions

18:30 ～ **Welcome Party**

March 8, 2011, Tuesday - Main Session (2)

9:30 ～ 10:10 L. Accardi, Roma II University, Italy
Markov Semigroups Associated to Infinitely Divisible Processes

10:10 ～ 10:50 V. Belavkin, Nottingham University, U.K.
An Introduction into Modular Theory of Entanglement and Information

10:50 ～ 11:05 **Coffee Break**

11:05 ～ 11:45 H. Kamimura, Tokyo University of Science, Japan
Is the Proton-Induced Conduction in Hydrogen-Bonded Systems Classical or Quantum-Mechanical?

11:45 ～ 12:25 I. Ojima, Kyoto University, Japan
QFT and Hadronic World as Dynamical Bases of Natural History

12:25 ～ 13:15 **Lunch Break**

13:15 ～ 13:55 M. Suzuki, Tokyo University of Science, Japan
Entropy Production and Non-equilibrium Steady States

13:55 ～ 14:35 Shao-Ming Fei, Capital Normal University, China
Quantum Entanglement and Distillation in Information Processing

14:35 ～ 14:50 **Coffee Break**

14:50 ～ 15:20 T. Matsuoka, Tokyo University of Science, Suwa, Japan
Sufficiency on Wandering Sub-Algebras

15:20 ～ 15:50 D. Chruscinski, Nicolaus Copernicus University, Poland
Non-Markovian Quantum Evolution

15:50 ～ 16:20 M. Regoli, Roma II University, Italy
How Can Steganography be an Interpretation of the Redundancy in pre-mRNA Ribbon?

16:20 ～ 16:35 **Coffee Break**

16:35 ～ 17:05 J. Jurkowski, Nicolaus Copernicus University, Poland
On Numerical Ranges of Operators

17:05 ～ 17:35 A. Trushechkin, Steklov Mathematical Institute, Russia
Micro- and Macrostructures, Boltzmann Equation and Functional Mechanics

March 9, 2011, Wednesday - Main Session (3)

9:30 ～ 10:10 W. Freudenberg, Brandenburg Techn. University Cottbus, Germany
A Classical Markov Chain in the Process of Recognition

10:10 ～ 10:50 K-H. Fichtner, L. Fichtner, Friedrich Schiller University Jena, Germany
High Density Limits of Brain Measurements

10:50 ～ 11:05 **Coffee Break**

11:05 ～ 11:35 K. Inoue, Tokyo University of Science, Yamaguchi, Japan
Internal Noise Caused by the Memory

11:35 ～ 12:15 Si Si, Aichi Prefectural University, Japan
A New Noise Depending on a Space Parameter and Its Application

12:15 ～ 13:15 **Lunch Break**

13:15 ～ 13:55 F. Fidaleo, Roma II University, Italy
Markov Chains on Quasi Local Algebras

13:55 ～ 14:35 Un Cig Ji, Chungbuk National University, Korea
Quantum White Noise Derivatives and Their Applications

14:35 ～ 14:50 **Coffee Break**

14:50 ～ 15:20 T. Ando, Georgia Institute of Tech., USA
Crowding and Hydrodynamic Interactions Likely Dominate in Vivo Macromolecular Motion

15:20 ～ 15:50 R. Belavkin, Middlesex University, UK
Minimum of Information Distance Criterion for Optimal Control of Mutation Rate in Evolutionary Systems

15:50 ～ 16:05 **Coffee Break**

16:05 ～ 16:35 G. Adenier, Tokyo University of Science, Japan
Multiple-Photon Absorption Attack on Entanglement-Based Quantum Key Distribution Protocols

16:35 ～ 17:05 Y. Kwon, H. Sugawara, S. Shimizu, S. Miyazaki, Tokyo University of Science, Japan
A Novel Measure for Finding Disease-specific Genes from the Biomedical Literature

March 10, 2011, Thursday - Main Session (4)

10:30 ～ 12:00 Y. Togawa, Tokyo University of Science, Japan

Tutorial I of QBIC – Mathematics for Chaos –

12:00 ～ 13:00 **Lunch Break**

13:00 ～ 14:30 M. Asano, Tokyo University of Science, Japan

Tutorial II of QBIC – Mathematical Physics for Cognitive Systems –

14:30 ～ 14:45 **Coffee Break**

14:45 ～ 17:00 **Free Discussion**

March 11, 2010, Friday - Main Session (5)

9:30 ～ 10:10 P. v.d. Straten, Universiteit Utrecht, Netherlands
An Intimate Gathering of Bosons

10:10 ～ 10:50 O.G. Smolyanov, Moscow State University, Russia
Some Rigorous Models of Irreversibility in Statistical Mechanics

10:50 ～ 11:05 **Coffee Break**

11:05 ～ 11:45 H. Nakano, NTT Basic Research Laboratories, Japan
Energy Flow and Information Flow in Qubit Measurement Process

11:45 ～ 12:15 S. Furuichi, Nihon University, Japan
Skew Information, Uncertainty Relation and Trace Inequality

12:15 ～ 13:00 **Lunch Break**

13:00 ～ 13:10 **Conference Photo**

13:10 ～ 14:10 **Poster Session (Question and Answer)**

14:10 ～ 14:50 D. Petz, Technical University of Budapest, Hungary
Efficient Quantum Tomography and Complementarity

14:50 ～ 15:20 T. Hara, K. Sato and M. Ohya, Tokyo University of Science, Japan
Entangled Sequence Alignment and Its Application for Bio-Sciences

15:20 ～ 15:35 **Coffee Break**

15:35 ～ 16:05 D. Wanke, University of Tuebingen, Germany
Deciphering DNA - Transcription Factor - Interactions: New Views on Old Topics

16:05 ～ 16:35 W. Im, The University of Kansas, U.S.A.
Information Theory Transfer Entropy: Causality of Correlated Motions from Molecular Dynamics Simulations

16:35 ～ 17:05 A. Accardi, Weill Cornell Medical College, U.S.A.
Hunting for Quantum Effect in Membrane Transporters

17:05 ～ 17:20 **Coffee Break**

17:20 ～ 17:50 T. Obayashi, Tohoku University, Japan
How to Measure the Similarity of Gene Expression

17:50 ～ 18:20 N. Watanabe, Tokyo University of Science, Japan
On Treatment of Gaussian Communication Process by Quantum Entropies

18:30 ～ **Banquet**

March 12, 2011, Saturday - Main Session (6)

9:30 ～ 10:10	T. Hida, Emeritus Professor, Nagoya University, Japan *Renormalizations in White Noise Analysis and Applications*
10:10 ～ 10:50	S. Miyazaki and R. Belavkin, Tokyo University of Science, Japan & Middlesex University, UK *The Computational Genome Sequence Analysis*
10:50 ～ 11:05	**Coffee Break**
11:05 ～ 11:45	I. Yamato, Tokyo University of Science, Japan *From Protein Structure / Function Toward in Silico Biology*
11:45 ～ 12:25	K. Kuchitsu, Tokyo University of Science, Japan *Signaling Network of Environmental Sensing and Adaptation in Plants*
12:25 ～ 13:25	**Lunch Break**
13:25 ～ 14:05	A. Khrennikov, University of Växjö, Sweden *Contextual-Aadaptive Dynamical Models in Microlbiology and Neurofinances*
14:05 ～ 14:35	I. Basieva, Russia Academy of Science, Russia *Mathematical Modeling of Quantum Gates in Interacting Particles*
14:35 ～ 14:50	**Coffee Break**
14:50 ～ 15:50	M. Ohya, Tokyo University of Science, Japan *Five Years of QBIC*
15:50 ～ 16:05	**Coffee Break**
16:05 ～	**Round Table** *Future of QBIC Chaired by M.Ohya*

March 13, 2011, Sunday – Satellite Session (S1) - Quantum Like Model -

10:00 ～ 10:45 A. Khrennikov, University of Växjö, Sweden
Quantum Like Model I

10:45 ～ 11:30 I. Yamato, Tokyo University of Science, Japan
Strong Correlation Phenomena in Biology

11:30 ～ 13:00 **Lunch Break**

13:00 ～ 13:45 K-H. Fichtner and W. Freudenberg, Friedrich Schiller University Jena, Germany and Brandenburg Technical University Cottbus, Germany
Quantum Like Model III and Brain Model

13:45 ～ 14:30 M. Asano, Tokyo University of Science, Japan
Quantum Like Model IV

14:30 ～ 14:45 **Coffee Break**

14:45 ～ 16:30 Y. Tanaka, M. Asano and M. Ohya, Tokyo University of Science, Japan
Perfect Quantum Teleportation for Nonmaximal Entangled States

16:30 ～ **Round Table**
Chaired by L.Accardi, A.Khrennikov, M.Ohya, I.Volovich

March 14, 2011, Monday – Satellite Session (S2-A) – Workshop on Information Security -

11:00 ～ 11:15	M. Ohya, Tokyo University of Science, Japan *Opening*
11:15 ～ 12:15	L. Accardi, Roma II University, Italy *A New Class of Asymmetric Algorithms*
12:15 ～ 13:30	**Lunch Break**
13:30 ～ 14:00	L. Accardi, Roma II University, Italy *A New Class of Symmetric (stream) Algorithms*
14:00 ～ 14:40	M. Regoli, Roma II University, Italy *Crypto--steganography: a New Type of Cryptographic Algorithm*
14:40 ～ 15:00	**Coffee Break**
15:00 ～ 16:00	L. Accardi, S. Iriyama, M. Ohya and M. Regoli, Roma II University, Italy and Tokyo University of Science, Japan *Technical Session: Demo and Software Implementation*
16:00 ～	**Discussion**

March 14, 2011, Monday – Satellite Session (S2-B) - WNA and QC -

10:00 ～ 11:00 L. Streit, BiBoS, Univ. Bielefeld, Germany
Self-Avoiding Polymer Configurations - An Extension of the Edwards Model

11:00 ～ 11:45 T. Hida, Emeritus Professor, Nagoya University, Japan
Space・Time・Noise

11:45 ～ 13:00 **Lunch Break**

13:00 ～ 13:45 I. Ojima, Kyoto University, Japan
Micro-Macro Duality and Quadrality Scheme

13:45 ～ 14:30 T. Hida, Emeritus Professor, Nagoya University, Japan
Revisiting the Dawning of the White Noise Analysis

14:30 ～ 14:45 **Coffee Break**

14:45 ～ 15:30 S. Oryu, Tokyo University of Science, Japan
The Three-body Coulomb Scattering Problem by the Mathematically Rigorous Approach in the Momentum Space

15:30 ～ 16:15 N. Watanabe, Tokyo University of Science, Japan
A Construction of Quantum Logical Gate Based on Symmetric Fock Space

16:15 ～ 17:00 Y. Hirota, Tokyo University of Science, Japan
Geometric Approach to Quantum Mutual Entropy